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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 13

Application Number: 09/509,126
Filing Date: March 22, 2000
Appellant(s): JONES ET AL.

Kenneth Solomon
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 05 November 2001.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: the rejection of claim 15 under 35 U.S.C. has been withdrawn.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-26 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,969,237	JONES ET AL.	10-1999
5,853,994	GOPINATHAN ET AL.	12-1998

De Boer, R. B. et al. "Screening of Crude Oils for Asphalt Precipitation: Theory, Practice, and the Selection of Inhibitors" SPE Production and Facilities, (February 1995), pp. 55-61.

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-11, 15-22, and 24-26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 5,969,237. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are essential duplicates, except for the use of multiple pulse averaging. Claim 1 of the instant application is unpatentable over claim 1 of the Patent since the sole difference is that the Patent claim has an additional step of application to a process flow stream; broader application of the claimed invention would include the specific application claimed in the Patent, and would therefore be obvious. The use of averaging multiple signals to decrease the effect of errors in singular measurements is common in the testing art and would be obvious to one having ordinary skill in the art.

Claims 1-14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer (SPE Production & Facilities 1995) in view of Gopinathan (U.S. 5,853,994). De Boer discloses a method for measuring the agglomerative state of

asphaltenes in oil comprising applying to the oil a signal of acoustic energy, thereby scattering part of the energy; detecting the backscattered energy, and determining the agglomerative state of the asphaltenes. See page 58, right column.

With respect to claims 1, 4, 5 and 16, De Boer does not teach a selected frequency range in which the magnitude of the scattered signal is resolved at selected frequencies. Gopinathan discloses a method for measuring agglomeration of particles in a fluid comprising applying to the fluid a signal of acoustic energy, thereby scattering part of the energy; detecting the scattered energy, and determining the agglomerative state of the particles wherein a frequency range is selected in which the magnitude of the scattered signal is resolved at selected frequencies. See column 6 and Figure 3..

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the method of magnitude vs. frequency as taught by Gopinathan in the method of de Boer to determine the agglomerative state of the particles, since this allows for assaying simultaneously for plural classes of agglomerating analytes discriminated by their size (as taught by Gopinathan, column 3), which yields a more detailed representation of the agglomerative state of the particles than the method of de Boer, which yields only an average agglomerative state.

With respect to claims 2 and 3, see Gopinathan Figure 3, column 6, lines 5-15, column 9, lines 33-38.

With respect to claim 6, it is well known in the art that the use of backscattered energy (as taught by de Boer) is an equivalent to the use of adsorbed energy (as taught by Gopinathan).

With respect to claims 7-9, it would have been a matter of routine experimentation to arrive at the claimed ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, and the prior art discloses MHz ranges for similar samples, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claims 10 and 11, see Gopinathan Figures 1 and 4.

With respect to claims 12-14, the examiner takes Official Notice of the use of off-normal angles for scattered energy measurements, and their use in the backscattered method of de Boer would have been obvious to one having ordinary skill in the art at the time the invention was made.

With respect to claims 17-18, Gopinathan discloses the use of standard sizes and comparison for calibration (column 10, lines 25-31).

With respect to claim 19, it is well known in the art to use scattering theory to predict particle size from scattering at a selected frequency.

With respect to the use of multiple pulses, the use of averaging multiple signals to decrease the effect of errors in singular measurements is common in the testing art and would be obvious to one having ordinary skill in the art.

(11) Response to Argument

With respect to the rejection of claims 1-11, 15-22, and 24-26 under the judicially created doctrine of obviousness-type double patenting, appellant presents two arguments; firstly, that the claimed improvement results from "resolving the data derived

from those detections such as by a Fourier transform", and secondly, that the claims of the cited patent (US 5,969,237) nowhere teach or suggest any benefit from averaging resolved results. In response to the first argument, claim 12 of the '237 patent sets forth the step of resolving such data by a Fourier transform technique. It is further noted that only claim 15 of the instant application sets forth a Fourier transform step. In response to the second argument, the rejection stated that "the use of averaging multiple signals to decrease the effect of errors in singular measurements is common in the testing art and would be obvious to one having ordinary skill in the art." Therefore, the rationale for performing an averaging step over multiple measurements was found in the general knowledge of the prior art (not in the '237 reference), and no traversal, timely or otherwise, of the well-known nature of averaging multiple measurements in the measurement art was presented.

With respect to the rejection of claims 1-4, 10, and 11 (appellants group (a)) under 35 U.S.C. 103, appellant has raised a "straw man" by arguing that the references are not combinable due to differences between the references which were not relied upon in the rejection of those claims. As stated in the Final Office Action, both references measure the amount of backscattering of an acoustic signal and relate the amount to the agglomeration of a material. The motivation for modifying the measurement method of the primary reference (de Boer) with the more detailed measurement method of the secondary reference (Gopinathan) stems from the more detailed representation of the agglomeration in a fluid which results from the use of

selected frequency ranges and the production of amplitude versus time data disclosed by Gopinathan. This would be advantageous in the method of de Boer since this would provide a fuller representation of the agglomerative state of the sample studied by de Boer. Appellant does not address the above argument; rather, the argument presented by the appellant on pages 9-12 is directed to the formation of the agglomerated particles which are to be measured. However, the applied teaching of the reference (note especially column 6, lines 5-42) is the method of measuring the agglutinated (agglomerative) state of a solution containing agglutinated masses. In response to this argument, it is noted that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, one of ordinary skill would have applied the measurement method of Gopinathan to teach that, in an acoustic scattering detection of agglomerated particles (such as disclosed by de Boer), a frequency range can be selected in which the magnitude of the scattered signal is resolved at scattered frequencies. Note further that Gopinathan discloses application of the backscattering analysis method to a standard set of particles, which require no process of making steps (column 10, lines 18-31).

With respect to appellant's argument on page 11 that the references do not teach adaptation for a continuum of particle sizes, such an adaptation is not claimed. It is

noted that de Boer discloses analysis of crude oil (pages 57-58) which would inherently contain a continuum of particle sizes.

With respect to claims 5-6 (group (b)), appellant argues that the method taught by the references would not be substantially instantaneous; however, the measurement methods of both de Boer and Gopinathan are substantially instantaneous, since the application, reception, and analysis of energy claimed require no significant time in the same manner as the claimed invention. Appellant's argument arises from the faulty inclusion of the particle making steps of Gopinathan in the combination used in the applied rejection; as discussed above, those steps are not required for the combination applied in the rejection to obviate the claimed invention.

With respect to claims 7-9 (group (c)), appellant argues that the method taught by the references would not make obvious the claimed ranges; however, de Boer discloses use of acoustic energy to measure asphaltene agglomeration, and Gopinathan teaches the use of a "frequency range over which detectable attenuation can be expected" (column 6, lines 5-15), and the prior art discloses MHz ranges for similar samples. With respect to claims 12-14 (group (d)), appellant argues that the method taught by the references would not make obvious the claimed ranges. In both cases, it would be a matter of routine experimentation to arrive at the claimed ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Aller*, 105 USPQ 233. These statement were not traversed by appellant.

Appellant argues only that ranges cannot be discovered since the method is not taught by the combination of references as for claim 1; since the combination of references properly teaches the claimed inventions detailed above, the discovery of optimum ranges would therefore be obvious.

With respect to claim 15 (group (e)), the rejection is withdrawn, since the prior art does not disclose the use of Fourier transformation in combination with the limitations of claim 15.

With respect to claim 16 (group (f)), appellant argues that the features are not found in the art of record. However, Gopinathan discloses application of a tone-burst and resolution of the magnitude of the scattered energy at selected frequencies; see column 6 (especially lines 35-42) and Figure 3.

With respect to claims 17-19 (group (g)), appellant argues that the features are not found in the art of record. However, with respect to claims 17 and 18, Gopinathan discloses the use of standards of known particle sizes for calibration (column 10, lines 25-31). Additionally, with respect to claim 19, the examiner stated that "it is well known in the art to use scattering theory to predict particle size from scattering at a selected frequency" (Final Office Action). This statement was not traversed by appellant.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

MTC

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December 20, 2001

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